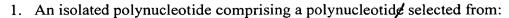
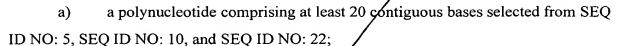
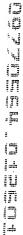
WHAT IS CLAIMED IS:





- a polynucleotide comprising at least 70% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- a polynucleotide comprising/at least 80% sequence identity to a c) polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - a polynucleotide complementary to a polynucleotide of (a) through (c). d)
- 2. A recombinant expression cassette comprising a polynucleotide selected from the group consisting of:
- a) a polynucleotide comprising at least 20 contiguous bases selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- a polynucleotide comprising at least 70% sequence identity to a **b**) polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- c) a polynucleotide comprising at least 80% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - d) a polynucleotide complementary to a polynucleotide of (a) through (c).
- 3. A vector comprising a recombinant expression cassette comprising a polynucleotide selected from the group consisting of:
- a polynucleotide comprising at least 20 contiguous bases selected from SEQ a) ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- a polynucleotide comprising at least 70% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- a polynucleotide comprising at least 80% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - d) a polynucleotide complementary to a polynucleotide of (a) through (c).
- 4. A host cell comprising a recombinant expression cassette comprising a polynucleotide selected from the group consisting of:



- a) a polynucleotide comprising at least 20 contiguous bases selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- b) a polynucleotide comprising at least 70% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- c) a polynucleotide comprising at least 80% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - d) a polynucleotide complementary to a polynucleotide of (a) through (c).



- 5. The host cell of Claim 4 wherein the cell is a plant cell
- 6. The host cell of Claim 5 wherein the cell is selected from the group consisting of maize, sorghum, wheat, tomato, soybean, alfalfa, sunflower, canola, cotton, and rice.
- 7. A transformed plant comprising a polynucleotide selected from the group consisting of:
- a) a polynucleotide comprising at least 20 contiguous bases selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- b) a polynucleotide comprising at least 70% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- c) a polynucleotide comprising at least 80% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - d) a polynucleotide complementary to a polynucleotide of (a) through (c).
- 8. A plant seed comprising a polynucleotide selected from the group consisting of:
- a) a polynucleotide comprising at least 20 contiguous bases selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- b) a polynucleotide comprising at least 70% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- c) a polynucleotide comprising at least 80% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - d) a polynucleotide complementary to a polynucleotide of (a) through (c).

- 9. A method of reducing pathogenicity of a fungus producing fumonisin or a structurally related mycotoxin, comprising:
- a) transforming a plant cell with a vector comprising a polynucle tide selected from the group consisting of:
 - i. a polynucleotide comprising at least 20 contiguous bases selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
 - ii. a polynucleotide comprising at least 70% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
 - iii. a polynucleotide comprising at least 80% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - iv. a polynucleotide complementary to a polynucleotide of i. through iii. operably linked to a promoter;
 - b) growing the plant cell under plant growing conditions; and
- c) inducing expression of said polynucleotides for a time sufficient for amounts of the fumonisin esterase and APAO enzymes to accumulate to levels that can inhibit the fungus.
- 10. A method of making an APAO enzyme comprising the steps of:
 - a) expressing a polynucleotide in a recombinantly engineered cell, wherein the polynucleotide is selected from the group consisting of:
 - i. a polynucleotide comprising at least 20 contiguous bases selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
 - ii. a polynucleotide comprising at least 70% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
 - iii. a polynucleotide comprising at least 80% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22, and
 - iv. a polynucleotide complementary to a polynucleotide of i. through iii. operably linked to a promoter;

and

- b) purifying the enzyme.
- 11. A method of making an APAO enzyme comprising the steps of:
- a) expressing a polynucleotide in a plant, wherein said polynucleotide is selected from the group consisting of:
 - i. a polynucleotide comprising at least 20 contiguous bases selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
 - ii. a polynucleotide comprising at least 70% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
 - iii. a polynucleotide comprising at least 80% sequence identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - iv. a polynucleotide complementary to a polynucleotide of i. through iii. operably linked to a promoter;

and

- b) purifying the enzyme from the plant seed or other plant parts.
- 12. An isolated polynucleotide comprising a polynucleotide selected from:
- a) a polynucleotide which hybridizes under high stringency conditions to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- b) a polynucleotide comprising at least 90% identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - c) a polynucleotide complementary to a polynucleotide of (a) through (b).
- 13. A recombinant expression cassette comprising a polynucleotide selected from the group consisting of:
- a) a polynucleotide which hybridizes under high stringency conditions to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- b) a polynucleotide comprising at least 90% identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and

- c) a polynucleotide complementary to a polynucleotide of (a) through (b).
- 14. A vector comprising a recombinant expression cassette comprising a polynucleotide selected from the group consisting of:
- a) a polynucleotide which hybridizes under high stringency conditions to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- b) a polynucleotide comprising at least 90% identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - c) a polynucleotide complementary to a polynucleotide of (a) through (b).
- 15. A host cell comprising a recombinant expression cassette comprising a polynucleotide selected from the group consisting of:
- a) a polynucleotide which hybridizes under high stringency conditions to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- b) a polynucleotide comprising at least 90% identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - c) a polynucleotide complementary to a polynucleotide of (a) through (b).
- 16. The host cell of Claim 15 wherein the cell is a plant cell
- 17. The host cell of Claim 16 wherein the cell is selected from the group consisting of maize, sorghum, wheat, tomato, soybean, alfalfa, sunflower, canola, cotton, and rice.
- 18. A transformed plant comprising a polynucleotide selected from the group consisting of:
- a) a polynucleotide which hybridizes under high stringency conditions to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- b) a polynucleotide comprising at least 90% identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - c) a polynucleotide complementary to a polynucleotide of (a) through (b).
- 19. A plant seed comprising a polynucleotide selected from the group consisting of:

- a) a polynucleotide which hybridizes under high stringency conditions to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
- b) a polynucleotide comprising at least 90% identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - c) a polynucleotide complementary to a polynucleotide of (a) through (b).
- 20. A method of reducing pathogenicity of a fungus producing fumonisin or a structurally related mycotoxin, comprising:
- a) transforming a plant cell with a vector comprising a polynucleotide selected from the group consisting of:
 - i. a polynucleotide which hybridizes under high stringency conditions to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
 - ii. a polynucleotide comprising at least 90% identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and
 - iii. a polynucleotide complementary to a polynucleotide of (a) through (b).
 - b) growing the plant cell under plant growing conditions; and
- c) inducing expression of said polynucleotides for a time sufficient for amounts of the fumonisin esterase and APAO enzymes to accumulate to levels that can inhibit the fungus.
- 21. A method of making an APAO enzyme comprising the steps of:
 - a) expressing a polynucleotide in a recombinantly engineered cell, wherein the polynucleotide is selected from the group consisting of:
 - i. a polynucleotide which hybridizes under high stringency conditions to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
 - ii. /a polynucleotide comprising at least 90% identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22; and

iii. a polynucleotide complementary to a polynucleotide of (a) through (b).

and

- b) purifying the enzyme.
- 22. A method of making an APAO enzyme comprising the steps of:
- a) expressing a polynucleotide in a plant, wherein said polynucleotide is selected from the group consisting of:
 - i. a polynucleotide which hybridizes under high stringency conditions to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO: 22;
 - ii. a polynucleotide comprising at least 90% identity to a polynucleotide selected from SEQ ID NO: 5, SEQ ID NO: 10, and SEQ ID NO:/22; and
 - iii. a polynucleotide complementary to a polynucleotide of (a) through (b).

and

b) purifying the enzyme/from the plant seed or other plant parts.